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Development of Performance Specification Process
(5-33958)

Final Technical Report for Period
13 September 1995 through 15 May 1996

August 1999

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PREFACE

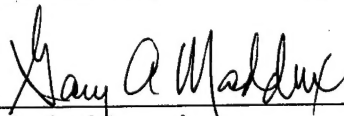
This technical report was prepared by the staff of the Research Institute, The University of Alabama in Huntsville. The purpose of this report is to provide documentation of the work performed and results obtained under Delivery Order 83 of MICOM Contract No. DAAH01-92-D-R006. Mr. Gary A. Maddux was the principal investigator. Mr. James Barrett and Ms. Alicia Fanning served as co-principal investigators. Mr. Terry Mullins, Industrial Operations Division, Systems Engineering and Production Directorate, Research, Development, and Engineering Center, U.S. Army Missile Command, provided technical coordination.

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Prepared for: Commander
U.S. Army Missile Command
Redstone Arsenal, AL 35898

I have reviewed this report, dated August 1999 and the report contains no classified information.



Principal Investigator

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	OBJECTIVES	1
3.0	STATEMENT OF WORK	1
4.0	PERFORMANCE SPECIFICATION PROCESS.....	2
5.0	CONCLUSIONS AND RECOMMENDATIONS	3

1.0 Introduction

The U.S. Army Missile Command (MICOM) Systems Engineering and Production Directorate (SEPD) Industrial Operations Division (IOD) has the mission and function of analyzing producibility and supportability for MICOM programs. The Research, Development and Engineering Center of MICOM was tasked with implementation of the Acquisition Reform guidance published in the "BluePrint for Change." This implementation involved the development of performance specifications for spare and repair parts and evaluation of the impact of these new specifications on the future supportability and readiness of the total system.

IOD conducts reviews and analysis of spare and repair parts for competitive acquisition and was the lead for MICOM to convert from using Technical Data Packages (TDP) to Performance Specifications. In order to facilitate the transition from TDPs to Performance Specifications, the Systems Management and Production Laboratory at The University of Alabama in Huntsville (UAH) was tasked to conduct research, develop scenarios, make recommendations, and design a process to ensure that conversions were consistently applied and well documented.

2.0 Objective

The objective of this task was to develop a TDP to Performance Specification conversion process for spare and repair parts. Research performed under this task would determine the appropriate use and relevance of performance specifications for systems with existing TDPs. The process was to be used in place of existing methods and used to replace TDPs where economic and effective use was warranted. This effort was to identify possible methods, improvements, and tools available to support the conversion to performance specifications.

3.0 Statement of Work

The statement of work, as outlined in delivery order 83, was as follows:

- 3.1 UAH shall develop and document a process for the development of performance specifications for missile components in missile related technology areas including electronics fabrication, inspection and test, and manufacturing operations. The process developed shall address the incorporation of manufacturing operations, quality control procedures, parts standardization and control, and testing procedures. The documentation shall be provided as a part of the final technical report.
- 3.2 UAH shall document a set of procedures for development of performance specifications and implementation of these new procedures into the spares procurement process. This documentation shall include implementation

approach, analysis of success of implementation, identification of major barriers to successful implementation, and impact of the new procedures on related functional specialties. The documentation shall be provided as a part of the final technical report.

4.0 Performance Specification Process

The Functional Support Templates (FST) Guide, as set forth by the Army Materiel Command (AMC) in a memorandum dated 5 July 1994, contained 22 templates covering a range of functional areas. These templates are used to evaluate the current method of acquisition versus an alternative approach that utilizes the development and use of performance specifications. As stated in the memo, "(The FST Guide)...considers alternatives to traditional functional ways of supporting acquisition. Application of the individual templates provides recommendations for eliminating low value functional requirements, applying commercial practices, using best value techniques, maintaining contractor flexibility and balancing."

The initial efforts of this research task were to review the existing "tech loop" process as it existed at MICOM, and to develop procedures that would be compatible with this process. Representatives from UAH, the Integrated Materiel Management Center (IMMC), the System Engineering and Production Directorate (SEPD), and the Product Assurance Directorate (PAD) served on a working group to determine the requirements for these new procedures. This working group performed investigations into current policies and procedures, and employed data gathering techniques such as interviews and visual observation to determine the most appropriate methodologies for inserting new procedures into existing systems.

Attempts at automation relied on the assumption that the analysis of a TDP could be broken into a set of fundamental questions, regardless of the TDP's complexity or simplicity. After several iterations of an acquisition package/TDP analysis during the design phase, a set of 34 questions was identified. These questions are grouped by the responding organization/function, (IMMC Item Manager, SEPD, and PAD), and corresponds to a paper questionnaire attached to each acquisition package. An output of the automation attempt was the Template Review and Analysis for Performance Specifications (TRAPS), a PC-based decision support tool.

The primary output of this task was an investigation of TRAPS and other state-of-the-art computer-based tools. Applications developed by the Navy and others were populated with MICOM-specific information to determine their applicability in the Army environment. The results of these analyses, along with candidate performance specifications, were delivered under separate cover.

5.0 Conclusion and Recommendations

During the time frame allocated by the delivery order, members of the UAH Systems Management and Production Lab, with the cooperation of representatives from MICOM SEPD, IMMC, and PAD, evaluated both a process and an automated tool to support the conversion of TDP reliant acquisition packages to those requiring performance specifications. The results of this evaluation were delivered to MICOM under separate cover.

As with any process, the conversion of TDPs to Performance Specifications will need to be analyzed on a regular basis. As the conversion of TDPs to performance specifications becomes more routine, the hours required should decrease as the learning curve levels. Therefore, even if initial estimates are currently perfect, then those will still show shifts over time. It is recommended that additional support be provided to the process to maintain a growing knowledge base.